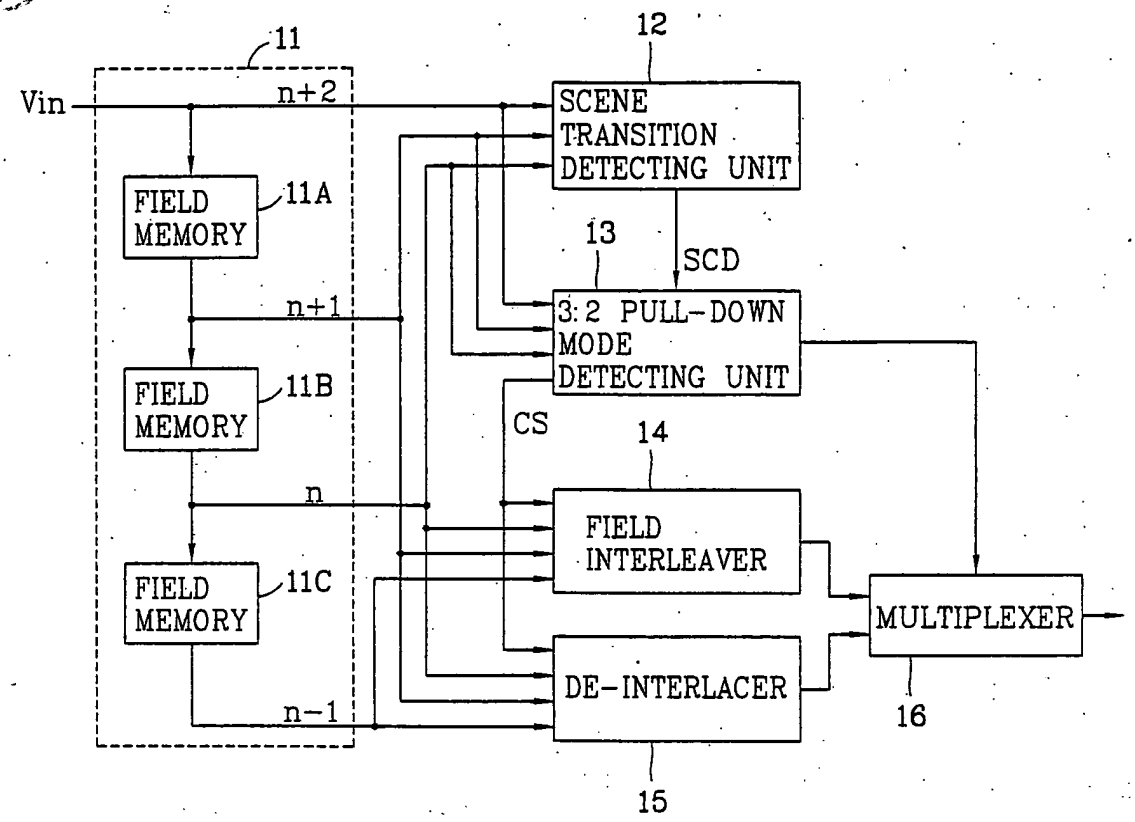
FIG. 1


11
12
Vin
n+2
SCENE TRANSITION DETECTING UNIT
FIELD MEMORY
11A
13
SCD
n+1
3:2 PULL-DOWN MODE DETECTING UNIT
FIELD MEMORY
11B
CS
14
n
FIELD INTERLEAVER
FIELD MEMORY
11C
MULTIPLEXER
DE-INTERLACER
n-1
16
15

20-0270-9298008-1

FIG. 2

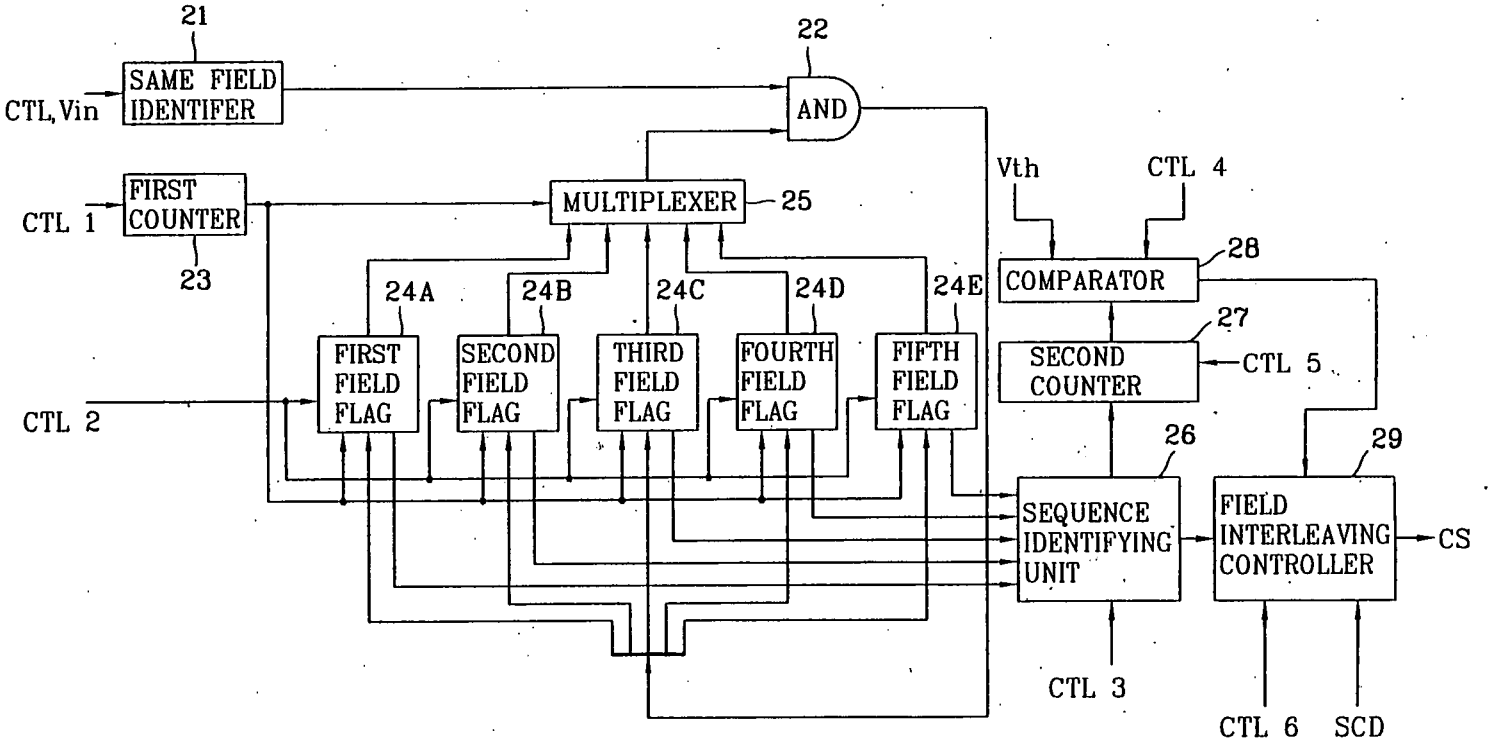


FIG. 3

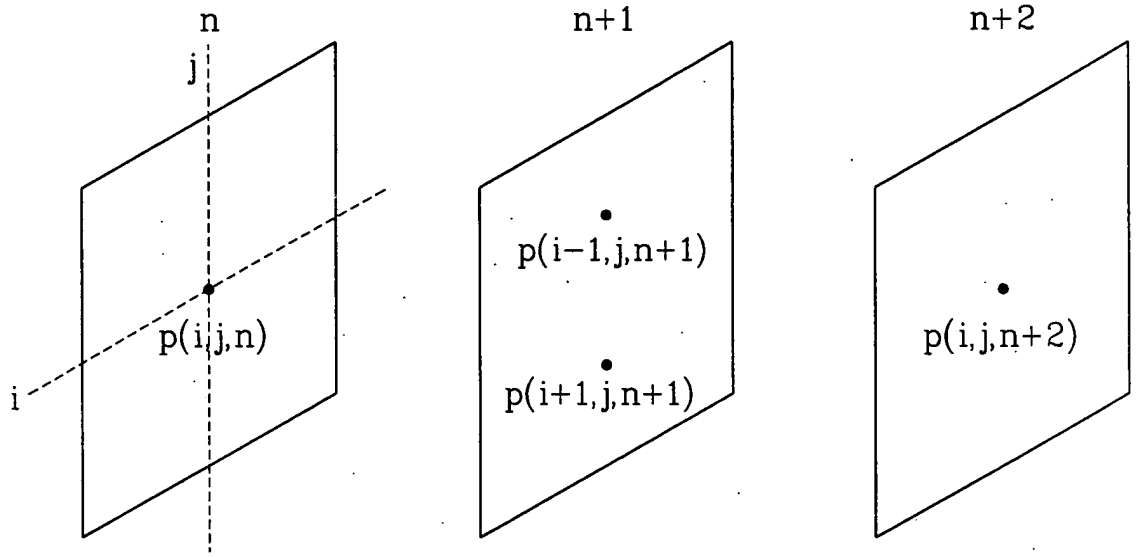


FIG. 4A

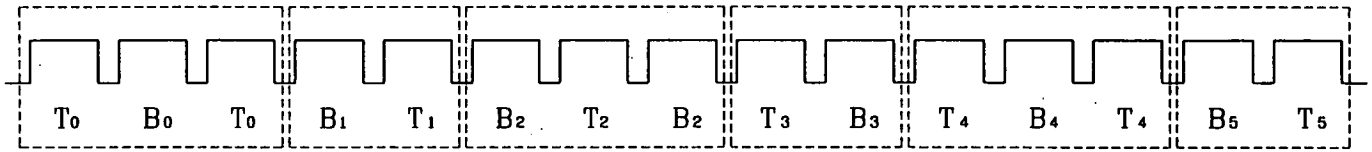


FIG. 4B

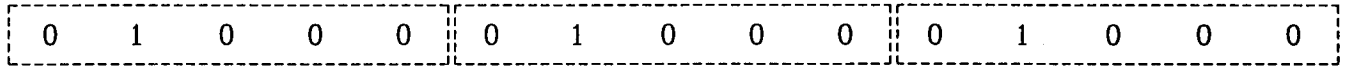


FIG. 4C

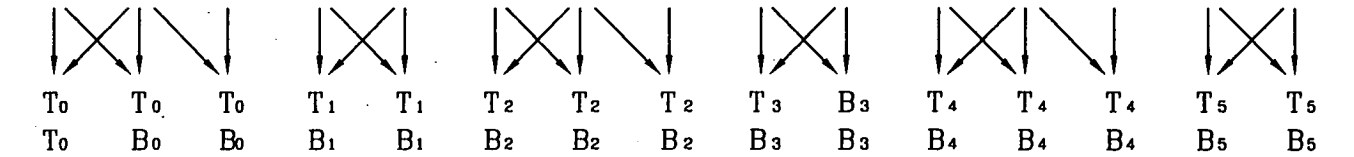


FIG. 5A

All variables are initialized to 0's every field.

```
FOR(i=1; i<Vertical_Size; i++){
    FOR(j=0; j<Horizontal_Size; j++){
        half_interval=|p(i-1,j,n+1)-p(i+1,j,n+1)|/2
        mean=(p(i-1,j,n+1)+p(i+1,j,n+1))/2

        bd_(n+2&n)=|p(i,j,n+2)-p(i,j,n)|
        IF(|p(i,j,n)-mean|≤half_interval) THEN
            bd_(n+1&n)=0
        ELSE
            bd_(n+1&n)=|p(i,j,n)-mean|-half_interval
        END IF
        final_bd_(n+1&n)=min{bd_(n+2&n),bd_(n+1&n)}
        sum_(n+1&n)=sum_(n+1&n)-motion_(n+1&n)[0]
        FOR(k=0; k<6; k++)motion_(n+1&n)[k]=motion_(n+1&n)[k+1]
        IF(final_bd_(n+1&n)>THRESHOLD_motion) THEN
            motion_(n+1&n)[6]=1
        ELSE
            motion_(n+1&n)[6]=0
        END IF
        sum_(n+1&n)=sun_(n+1&n)+motion_(n+1&n)[6]
        IF(sum_(n+1&n)>3) THEN
            total_motion_(n+1&n)=total_motion_(n+1&n)+1
        END IF
        IF(|p(i,j,n+2)-mean|≤half_interval) THEN
            bd_(n+1&n+2)=0
        ELSE
            bd_(n+1&n+2)=|p(i,j,n+2)-mean|-half_interval
        END IF
        final_bd_(n+1&n+2)=min{bd_(n+2&n),bd_(n+1&n+2)}
        sum_(n+1&n+2)=sum_(n+1&n+2)-motion_(n+1&n+2)[0]
        FOR(k=0; k<6; k++) motion_(n+1&n+2)[k]=motion_(n+1&n+2)[k+1]
        IF(final_bd_(n+1&n+2)>THRESHOLD_motion) THEN
            motion_(n+1&n+2)[6]=1
        ELSE
            motion_(n+1&n+2)[6]=0
        END IF
        sum_(n+1&n+2)=sum_(n+1&n+2)+motion_(n+1&n+2)[6]
        IF(sum_(n+1&n+2)>3) THEN
            total_motion_(n+1&n+2)=total_motion_(n+1&n+2)+1
        END IF
    }
}
```

FIG. 5B

```
IF( |total_motion_(n+1&n)-total_motion_(n+1&n+2)| <THRESHOLD_diff_motion ) THEN
    "The scene change did not occurred."
ELSE
    IF(total_motion_(n+1&n)<THRESHOLD_total_motion ) THEN
      total_motion_(n+1&n)=0
    END IF
    IF(total_motion_(n+1&n+2)<THRESHOLD_total_motion ) THEN
      total_motion_(n+1&n+2)=0
    END IF
    IF(total_motion_(n+1&n)<total_motion_(n+1&n+2) THEN
      "The scene was abruptly changed in the (n+2)th field."
    ELSE IF(total_motion_(n+1&n)>total_motion_(n+1&n+2)) THEN
      "The scene was abruptly changed in the (n+1)th field."
    ELSE
      "The scene change did not occurred."
    END IF
END IF
```

FIG. 6

All variables are initialized to 0's every field.

```
FOR(i=1; i<Vertical_Size; i++){
    FOR(j=0; j<Horizontal_Size; j++){
        half_interval= |p(i-1,j,n+1)-p(i+1,j,n+1)| /2
        mean=(p(i-1,j,n+1)+p(i+1,j,n+1))/2
        IF( |p(i,j,n)-mean| ≤half_interval) and( |p(i,j,n+2)-mean| ≤half_interval))
            THEN bd_(n+2&n)=0
        ELSE
            bd_(n+2&n)=| p(i,j,n+2)-p(i,j,n)|
        END IF
        sum_(n+2&n)=sum_(n+2&n)-motion_(n+2&n)[0]
        FOR(k=0; k<6; k++)motion_(n+2&n)[k]=motion_(n+2&n)[k+1]
        IF(final_bd_(n+2&n)>THRESHOLD_motion ) THEN
            motion_(n+2&n)[6]=1
        ELSE
            motion_(n+2&n)[6]=0
        END IF
        sum_(n+2&n)=sun_(n+2&n)+motion_(n+2&n)[6]
        IF(sum_(n+2&n)>3) THEN
            total_motion_(n+2&n)=total_motion_(n+2&n)+1
        END IF
    }
}
```